<u>REMARKS</u>

Claims 1-33 are pending in the application. Reconsideration and allowance of the application are respectfully requested.

Applicant understands that the objections to the drawings and claims, the rejections under 35 U.S.C. §112(1) of claims 13, 15 and 16, and the rejections under 35 U.S.C. §112(1) have been withdrawn. In view of Applicants remarks in prior Responses of record and otherwise, Applicant maintains the traversal of the relevant objections and rejections, and submits that any related amendments were not necessary for patentability.

As claims 18-20 do not stand rejected, and in view of the above, Applicant understands these claims to be allowable.

Applicant traverses the rejection of claims 3 and 4 under 35 USC §112(1), because the rejection is contrary to the requirements of Section 112(1). Specifically, Section 112(1) does not require that the claims cover all possible embodiments as described in the specification as the Examiner appears to be asserting in requiring that claim 3 cover a particular situation where no prior generation design is available. In this instance, the terms in claim 3 that are the subject of the rejection (a "prior generation") further limit claim 1 and are supported in the specification (*e.g.*, paragraph 0022) because the indicated method is applicable for iterative use, including multiple generations that would involve a situation where a prior generation is available (*e.g.*, beyond an initial generation). In this context, claims 3 and 4 (which depends from claim 3) are applicable to a variety of example embodiments including those relating, for example, to 3rd, 4th and additional generations of designs. Moreover, there is no requirement in claim 1 or otherwise that the operating system must be used in a situation where an initial generation has not been carried out, as the Examiner is asserting; for instance, the indicated population of designs may have an associated fitness level determined elsewhere or otherwise, prior to the Examiner's proposed

initial generation. Should the Examiner require further clarification, a telephone call to the undersigned is invited.

Applicant traverses the 35 USC §102(e) rejections over Buczak et al. (US patent publication 2003/0050902) because Buczak's "convergence criteria" or "fitness criteria" and disclosed use thereof is not suggestive of the claim limitations directed to a consensus result, the claimed generation of the consensus result, and the subsequent use of the generated consensus result. While the Examiner "has full latitude to interpret each claim in the broadest reasonable sense," the Examiner goes beyond this in attempting to show correspondence to the term "consensus" as relevant to meanings of the term itself, rather than the term as it is actually used in the claims. A Section 102 rejection is not supported simply because certain terms in the prior art can be interpreted similarly to terms used in the rejected claim; rather, Section 102 requires that all of the claim limitations be disclosed as arranged in the claimed invention. This is also consistent with M.P.E.P. Section 2131.

In this instance, the Examiner continues to ignore the full context of the limitation "consensus result" including its determination and subsequent use, and the Office Actions of record have failed, to date, to show any correspondence to the same. As relative to independent claims 1 and 21, the claimed invention replaces designs in a population of designs by "selecting for replacement at least one design as a function of the associated fitness level." This associated fitness level is determined for each design "as a function of the associated result signal and the consensus result." The result signal is specific to the design for which fitness is determined, and the consensus result is determined using "at least two of the generated result signals" for designs in the population. In this context, the claimed "consensus result" is determined using result signals from designs in the population itself, and is used together with the result signal of individual designs to select a design for replacement. Thus, the consensus result is not a predetermined fitness criteria or other condition that can be "met" by a design in the population; it is an intermediate result determined from signals generated by the designs themselves, and used with the signals to select a design for replacement.

Buczak's "convergence criteria" or "fitness criteria," which are asserted in the Office Action as corresponding to the claimed invention and consensus result, clearly do not correspond to the above-described claim limitations. None of the cited portions of the Buczak reference show that its convergence or fitness criteria are determined "as a function of at least two of the generated result signals" where the result signals are generated from designs in a population (*e.g.*, as in claims 1 and 21). The Buczak reference also fails to disclose using its convergence criteria together with a generated result signal specific to each design to determine an associated fitness level of each design, and selecting and replacing a design in a population of designs as a function of the associated fitness level (*e.g.*, also as in claims 1 and 21).

For example, the cited portions of the Buczak reference (paragraph 47) refer to stopping an algorithm in response to achieving predetermined convergence criteria or meeting predetermined fitness criteria, and replacing an entire population of designs when the population meets predefined criteria. Where a fitness level is predefined, Buczak discloses its convergence/fitness criteria as predefined criteria in "checking to see if the fitness of individuals meets some defined fitness criteria" in paragraph 0047, where such criteria is known.

In instances where a fitness level is not known, Buczak discloses its population-based convergence/fitness criteria as a predefined "number of generations" or predefined "number of generations where there is no change in the fittest individual" as further discussed in paragraph 0047. Neither this predefined number of generations, nor the fittest level of a single individual, provides correspondence to the claim limitations directed to "determining a consensus result as a function of at least two of the generated result signals" and using the consensus result to select an individual design for replacement.

Buczak goes on to say "[i]n either context, this step checks to see if the requirements, whether a number of generations or a fitness value of the population, have been met." Buczak's population-based approach uses predefined criteria and makes no mention of either using its predefined convergence/fitness criteria to further determine "an associated fitness level of each design" (an individual design in a population) with a result signal for each design, or using the associated fitness level to

select a design in a population for replacement as claimed. In this context, neither Buczak's "convergence criteria" nor its "fitness criteria" have any reasonable correspondence to the claimed generation of a consensus result using result signals from designs themselves; Buczak's criteria are predefined conditions that, when met, are used to select a population. Moreover, Buczak does not select individual designs from a population for replacement using an associated fitness level, consensus result and design-specific result signal as claimed. Rather, Buczak requires that an entire population "either will meet the criteria or will not meet the criteria" as also indicated in paragraph 0047.

In view of the above, the Office Actions of record have not shown correspondence to all of the limitations of independent claims 1 and 21 as a whole, and the cited Buczak reference does not disclose the limitations as suggested in the Office Action. This is also relevant to the rejection of claims 2-20 and 22-24, which respectively depend from claims 1 and 21, the limitations of which have not been further addressed in the instant Office Action. Applicant therefore request removal of the rejections of all of these claims.

Applicant also traverses the 35 USC §102(a) rejection of claims 25-28 and 30-33, which relies upon the SMC-IT 2003, July 13-16, 2003 "Evolvable Systems for Space Applications" to Lohn *et al.* ("Lohn"), because Lohn neither teaches nor suggests all of the claimed limitations. As consistent with the above discussion of independent claims 1 and 21, the Office Action again appears to improperly focus on similarities between terms or assumed terms in the claimed invention and in the cited reference, without showing all of the limitations as arranged in the claimed invention. The Office Action emphasizes this at page 9 in asserting that Lohn's "externally supplied energies and forces" are the reference point for a consensus result." Clearly, Lohn's reference point is not determined "as a function of associated result signals from at least two of the plurality of designs" as in independent claim 25. Rather Lohn's reference point is an externally-determined reference point. As discussed above, this is contrary to the claimed invention as directed to using result signals from the designs themselves to determine a consensus result, to using the consensus result to

determine a fitness level of each design in a population, and replacing a design in a population based upon the same. That is, the alleged "consensus" in the Lohn reference is based upon an external reference and has nothing to do with the claim term "consensus result" and its determination or subsequent use in selecting a design for replacement.

In addition to the above, Lohn's "tournament selection" approach cited at section 2.1 does not provide correspondence to the limitations in claim 25 directed to determining "an associated fitness level of each design" in the population. Specifically, Lohn's tournament approach appears limited to determining a fitness level of two designs, using external criteria, and replacing one of two designs. This cited portion of Lohn thus does not provide correspondence to the claim limitations as asserted in the Office Action.

In view of the above, the cited portions of the Lohn reference do not provide correspondence to independent claim 25 as a whole, and the Lohn reference does not disclose the limitations as suggested in the Office Action. This is also relevant to the rejection of claims 26-38 and 30-33, which depend from claim 25, the limitations of which have not been further addressed in the instant Office Action. Applicant therefore requests removal of the rejections of all of these claims.

Applicant traverses the rejection of claim 29 under 35 USC §103(a) over Lohn. Claim 29 depends from claim 25. Thus, the Examiner has not shown that Lohn suggests the limitations of claim 29 for at least the reasons set forth above for claim 25. Applicant therefore requests that the rejection be withdrawn.

CONCLUSION

In view of the above, Applicant requests that all of the claim rejections be removed. Moreover, as the Sections 102 and 103 rejections rely upon earlier Office Actions of record, Applicant incorporates responses of record by reference and submits that the rejections should also be removed for the reasons of record.

Reconsideration and a notice of allowance are respectfully requested in view of the Remarks presented above. If the Examiner has any questions or concerns, a telephone call to the undersigned is invited.

Respectfully submitted,

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I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent & Trademark Office on April 9, 2008.
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